Many in line   P25174_en

Write a program that reads cubes $n \times n \times n$ of integer numbers and computes how many lines of size m contains, for any m between 2 and n. Here, a line is a sequence of identical integer numbers adjacents in the same direction. The considered directions are vertical, horizontal, of depth, (in total, 26 senses, in 13 directions).

Input

Input consists of a sequence of cube descriptions separated by an empty line. Each description starts with a natural $n \geq 2$. n descriptions of each plane of the cube follow, separated by an empty line, each plane has n rows with n integer numbers each one.

Output

for each cube, print how many lines of size m contains, for any m between 2 and n. Follow the format of the examples. Separate the different outputs with an empty line.

Sample input 1

```
2

1 1
1 1

4 4
4 4

2

1 2
3 1

1 6
7 8

3

1 1 1
1 1 1
1 1 1

1 1 1
1 1 1
1 1 1

1 1 1
1 1 1
1 1 1
```

Sample output 1

```
Ratlles de mida 2: 12

Ratlles de mida 2: 3

Ratlles de mida 2: 158
Ratlles de mida 3: 49
```

Problem information

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